European Economic Review 55 (2011) 1152–1176

Contents lists available at ScienceDirect

European Economic Review

journal homepage: www.elsevier.com/locate/eer

Barriers to entry, deregulation and workplace training: A theoretical model with evidence from Europe ☆

Andrea Bassanini [a,c,d,1], Giorgio Brunello [b,e,*]

[a] OECD, 2 rue André Pascal, 75775 Paris Cedex 16, France
[b] Department of Economics, University of Padova, via del Santo 33, 35100 Padova, Italy
[c] ERMES-Paris 2, France
[d] IZA, Germany
[e] CESifo, Germany

ARTICLE INFO

Article history:
Received 24 September 2009
Accepted 21 May 2011
Available online 13 June 2011

JEL classification:
J24
L11
O43

Keywords:
Training
Product market competition
Regulatory reform
Europe

ABSTRACT

We study the impact of regulatory barriers to entry on workplace training. We develop a model of training in imperfectly competitive product and labour markets. The model indicates that there are two contrasting effects of deregulation on training. As stressed in the literature, with a given number of firms, deregulation reduces the size of rents per unit of output that firms can reap by training their employees. Yet, the number of firms increases following deregulation, thereby raising output and profit gains from training and improving investment incentives. The latter effect prevails. In line with the predictions of the theoretical model, we find that the substantial deregulation in the 1990s of heavily regulated European industries (energy, transport and communication) increased training incidence.

1. Introduction

This paper develops a theoretical and empirical analysis of the relationship between product market regulation and workplace training in the European context. We believe that looking at training is important because of its effects on productivity. For example, OECD (2007) surveys the literature on training and productivity and reports that the elasticity of the latter to the former is between 0.05 and 0.15 for European countries.

A casual look at available industry-level cross-country data reveals that the degree of stringency of anti-competitive product market regulation and the training participation rate are negatively correlated. Using data from the European Labour Force Survey and the OECD regulatory database which cover the years 1995–2002, Fig. 1 illustrates this for 15 European countries and 3 non-manufacturing industries (energy, transport and communication), for which regulation data are available.

☆ The views expressed here cannot be attributed to the OECD or its member countries. We are grateful to Alex Hijzen and Laura Niini Vartia for their help with the data. We also wish to thank the Editor, three anonymous referees, Kenn Ariga, Giuseppe Bertola, Georges Bresson, Eve Caroli, Maria De Paola, Fathi Fakhfakh, Vincenzo Galasso, Cecilia Garcia-Peñalosa, Peter Gottschalk, Marco Leonardi, James Malcomson, Franck Malherbet, Fabio Manenti, Alfonso Rosolia, Armin Schmutzler, Guido Schwerdt, Francisco Serranito, Said Souam, Katsuya Takii, Giovanna Vallanti, and the audiences in Buch am Ammersee, Cergy, Gerona, Madrid, Marseille, Milan, Munich, Osaka, Paris and Zurich for comments and suggestions. The usual disclaimer applies.

* Corresponding author. Tel.: +39 044 8274223.
E-mail addresses: andrea.bassanini@oecd.org (A. Bassanini), giorgio.brunello@unipd.it (G. Brunello).
[1] Tel.: +33 1 45249032.

0014-2921/$ - see front matter © 2011 Elsevier B.V. All rights reserved.
doi:10.1016/j.euroecorev.2011.05.004

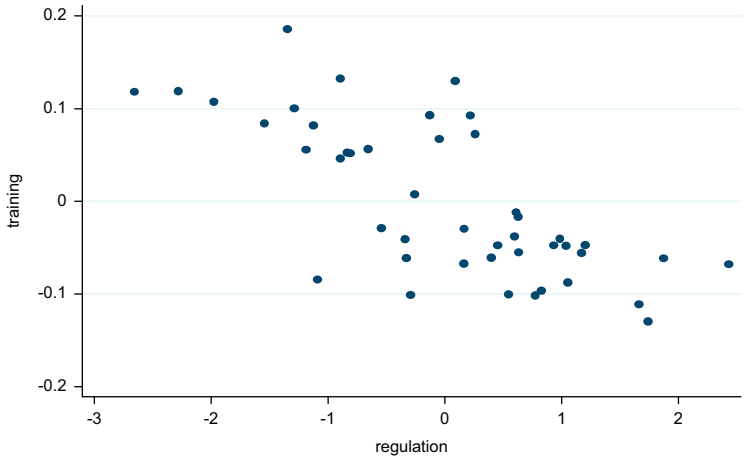

Fig. 1. The correlation between training and anti-competitive regulation. *Note*: Data refer to averages for 1995–2002, three 2-digit (letter) industries (energy, transport and communications) and 15 countries (Norway and pre-enlargement EU excluding Luxembourg). The training participation rate refers to training taken in the 4 weeks preceding the survey by full-time employees aged between 25 and 54 years and with at least 4 weeks of tenure. The regulation indicator is a simple average of sub-indicators concerning industry-specific entry barriers, the market share of the dominant player(s), vertical integration in network industries and price controls (see Section 4 of the paper for details). The industry average of each variable has been subtracted to make comparable in a single chart figures from different industries.
Sources: OECD regulatory database and Eurostat, European Labour Force Surveys.

Yet labour economists typically expect that product market competition depresses training, because additional competition compresses the size of the rents that can be appropriated by firms, which invest in human capital and pay for most of job-related training (see e.g. Acemoglu and Pischke, 1999; Gersbach and Schmutzler, 2001, 2006). This view apparently overlooks a standard finding in the theory of industrial organization: a firm's incentives to reduce unit costs – for instance by training more workers – do not depend on the size of rents *per se* but on the sensitivity of rents to unit cost reductions (see e.g. Boone, 2000; Aghion et al., 1997). In the case of price competition (that is when firms set prices rather than quantities), if firms have similar production costs and there is endogenous entry, it is well known that greater competition increases incentives to reduce unit costs even if rents – defined in terms of profits per unit of output – fall (see e.g. Aghion et al., 2001). This occurs because reducing costs allows reducing prices and the sensitivity of product demand to relative prices is greater, the greater the degree of competition.

In this paper we argue that a similar mechanism applies to the investment in human capital by firms, insofar as firms pay for training as a mean to reduce unit costs (see e.g. Stevens, 1996; Acemoglu and Pischke, 1999). We develop a model which casts the training decision in an economy characterized by imperfectly competitive product and labour markets, where firms and workers are ex-ante identical and firms compete in the product market by setting prices, as in Blanchard and Giavazzi (2003). We show that in equilibrium deregulation has two contrasting effects on training. On the one hand, a reduction in the barriers to entry for a given number of firms compresses profits per unit of output, and therefore tends to depress training (we will call this "rent effect" hereafter). On the other hand, there is an "elasticity" or "business stealing" effect: conditional on profits per unit of output, additional firm entry due to deregulation increases the output (and therefore profit) gains from training and raises the employer's incentive to invest in human capital. Output gains increase because additional training reduces the relative product price and the response of output to prices is greater, the greater the degree of competition in the product market.[2] In our model the latter effect prevails on the former, and therefore deregulation increases training intensity.

We first derive the equilibrium and describe the comparative statics when: (a) training is firm—specific and paid by firms; and (b) wages are the outcome of the bargain between employers and workers. We focus on training paid and organized by firms because this is the bulk of workplace training (see Bassanini et al., 2007, and the references therein), and on bargaining in line with the importance of collective wage determination in Europe, to which our empirical analysis applies. Our emphasis on firm—specific training is also motivated by the European perspective. In his comparative analysis of labour markets, Wasmer (2006) argues that in Europe high employment protection facilitates the investment in firm—specific skills and reduces labour mobility. By contrast, in the United States, limited protection favours both the accumulation of more general skills and higher mobility of workers.

Next, we show that our key results apply also when training is general and the marginal cost of training is lower than the marginal cost of hiring, because labour market frictions substantially reduce the transferability of general skills, making them *de facto* specific, as discussed by Acemoglu and Pischke (1999). Moreover, we show that the positive

[2] A similar effect is also stressed by Vives (2008), who investigates the relationship between competition and innovation, and Raith (2003), who looks at how competition affects managerial incentives.